IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.:	US 6,799,955 B1
Issued:	October 5, 2004
Patentee:	Joseph A. SBAROUNIS
For:	TWO-LOBE ROTARY MACHINE
Application No.:	10/628,658
Filed:	July 28, 2003
Attorney Docket:	7733/78734
Customer No.:	22242

Confirmation No. 4398

This Request For Certificate Of Correction Of Patent was electronically filed on June 15, 2007 using the USPTO's EFS-Web.

Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

ATTENTION: Certificate of Corrections Branch

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR PTO MISTAKE (37 C.F.R. § 1.322)

Sir:

In accordance with 37 C.F.R. § 1.322, the above-specified Patentee, through its attorneys, respectfully request that a Certificate of Correction be issued for the above-captioned patent to correct the following errors.

The exact page and line number where the errors occurred in the application file are:

IN THE CLAIMS:

Column 13, line 43, delete the equation $\sqrt{R_{C2}{}^{2+R_{P1}2-2R_{\sim\cdots\cdots}}}$ and insert --$\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$.-- therefor (from Amendment B, page 5, claim 7, line 3).

Column 15, line 23, delete "claim 19" and insert --claim 18-- therefor (from Amendment B, page 7, claim 17, line 1).

REMARKS

The above-requested changes result from errors which occurred during printing of Patent US 6,799,955 B1 and which are attributable to the United States Patent and Trademark Office ("USPTO"). It is believed that issuance of a Certificate of Correction is appropriate, and issuance of such Certificate is respectfully requested.

A Certificate of Correction form, PTO/SB/44 (also referred to as PTO 1050), incorporating the requested changes is enclosed herewith.

In accordance with procedures set forth in the notice entitled "Expedited Issuance of Certificates of Correction When the Error is Attributable to the United States Patent and Trademark Office," Patentee submits herewith a copy of Amendment B dated October 15, 2003 as supporting documentation so that this request can be processed without the patent file.

Please send the Certificate to:

James P. Krueger, Esq.
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Chicago, Illinois 60603-3406

The Commissioner is hereby authorized to charge any additional fees which may be required in respect to this communication to Deposit Account No. 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

Dated: June 15, 2007

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PATENT
ATTORNEY DOCKET NO. **78734**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Joaseph A. Sbarounis
Serial No.:	10/628,658
Filed:	July 28, 2003
Title:	TWO-LOBE ROTARY MACHINE
Group Art Unit:	Not Yet Assigned
Examiner:	Not Yet Assigned

CERTIFICATE OF MAILING

I hereby certify that this paper is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on this date.

OCT 15 2003
Date

Bruce R. Mansfield
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Attorney for Applicant

AMENDMENT B

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to examination, please enter the following Preliminary Amendment to the present application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks and Arguments begin on page 10 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (Currently Amended) A rotary machine comprising:

a housing with spaced apart end walls for defining a chamber;

a two-lobe elliptical or lenticular rotor assembly having curved faces meeting at symmetrically opposed apices, said rotor assembly having two parallel end faces extending between said curved faces, each of said parallel end faces facing one of said end walls, said rotor assembly disposed in said chamber for eccentric rotation therein, said rotor assembly further having an even number of eight or more straight cams ~~cam surfaces~~ in at least one of said parallel end faces arranged about a center of said rotor assembly, each of said straight cams defining an edge ending at a distance from said rotor center;

a rotor guide assembly extending from at least one of said end walls, said rotor guide assembly including four or more arc cams, each of said four or more arc cams being cylindrical in shape over a portion thereof, each of said four or more arc cams having a radius R_p over said portion, each of said four or more arc cams extending through at least one of said parallel end faces having said straight cams, said four or more arc cams engaging said straight cams during said eccentric rotation of said rotor assembly, each of said arc cams having a center longitudinal axis;

a shaft having a center longitudinal axis, said center longitudinal axis of said shaft being offset from said center of said rotor assembly by an offset distance R_{C1}, said shaft extending through said chamber and rotatably mounted in one or both of said endwalls, said shaft further being centered between said four or more arc cams such that the distance R_{C2} of said center longitudinal axis of said shaft to each of said center longitudinal axis of said four or more arc cams is equal to said offset distance R_{C1}, said shaft including at least one eccentric bearing for forming driving contact between said shaft and said rotor assembly, said eccentric bearing having longitudinal center passing through said center of said rotor assembly;

a point of engagement of each of said arc cams with either of two engaging straight cams of said eight or more straight cams, said point of engagement having distance from said center of said rotor assembly, said point of engagement having a rotor assembly position, said rotor assembly position having an angle (180 - α) between said center of said rotor assembly to said arc cam center longitudinal axis measured from said shaft center longitudinal axis, said point of engagement having said distance from said center of said rotor assembly equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180-\alpha) + R_P^2}\ .$$

2. (Currently Amended) The rotary machine of claim 1 further comprising:

a region adjacent said eight or more straight cams, said region having a minimum radius of simultaneous engagement measured from said center of said rotor assembly, said radius being defined by two adjacent leading arc cams or adjacent trailing arcing cams of said arc cams, said two arc cams having a first in line arc cam and second in line arc cam, said two adjacent arc cams having an angle (χ) between said center longitudinal axis of said two adjacent arc cams measured from said shaft center longitudinal axis, said angle (χ) being the maximum for any two adjacent leading arc cams or trailing arc cams, said angle (χ) being greater than 180 degrees, said minimum radius of simultaneous engagement being said distance of engagement of the said second in line of said two adjacent arc cams and said distance of engagement of said first in line of said two adjacent arc cams when equal, said rotor having position for said minimum radius of simultaneous engagement, said position having an angle (180 - α1m) between said center of said rotor assembly to said second in line of two adjacent arc cams center longitudinal axis measured from said shaft center longitudinal axis, said position having an angle (180 - α2m) between said center of said rotor assembly to said first in line of two adjacent arc cams center longitudinal axis, said minimum radius of simultaneous engagement is equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180-\alpha 1m) + R_{P1}^2}\ .$$

3. (Original) The rotary machine of claim 2 wherein:

said minimum radius of simultaneous engagement is also equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180 - \alpha 2m) + R_{P2}^2}$$

4. (Previously Presented) The rotary machine of claim 2 wherein:

said minimum radius of engagement for said arc cams of equal radius is equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180 - \tfrac{1}{2}\chi) + R_{P1}^2}$$

5. (Original) The rotary machine of claim 4 further comprising:

an edge of said second in line arc cam of said two arc cams of said leading or trailing set of arc cams, said edge containing a contact point between arc cam and straight cam at minimum

radius of simultaneous engagement, said edge being a distance R_{smax} from said shaft center longitudinal axis, said distance R_{smax} from shaft longitudinal center is equal to

$$\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$$

6. (Original) The rotary machine as claimed in Claim 5, further comprising a hole passing through the central portion of the rotor assembly and said parallel end faces;

wherein said shaft extends through said hole and said chamber, and is rotatably mounted in each of said end walls; and

wherein said hole is sized so that a distance between said rotor assembly center longitudinal axis to each of said two edges for each of said open ends of said slots is less than a minimum radius of simultaneous engagement equal to

$$\sqrt{R_{C1}^2 + R_{C2}^2 - 2R_{C1}R_{C2}\cos(180 - \alpha 1m) + R_{P1}^2}$$

7. (Original) The rotary machine of claim 6 wherein:

the maximum radius of said shaft is less than

$$\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$$

8. (Original) The rotary machine as claimed in Claim 7, further comprising a cutout portion in said shaft to provide clearance for said shaft to extend through the hole in said rotor assembly.

9. (Original) The rotary machine as claimed in Claim 7, wherein said arc cams are shaped to provide rotational clearance for said shaft.

10. (Previously Presented) The rotary machine as claimed in Claim 1, wherein said arc cams are generally cylindrical in shape.

11. (Original) The rotary machine as claimed in Claim 7, wherein said shaft is cylindrical in shape except for a portion adjacent said eccentric bearing.

12. (Previously Presented) The rotary machine as claimed in Claim 1, wherein said arc cams are cylindrical bearings.

13. (Original) The rotary machine as claimed in Claim 12, wherein each of said cylindrical bearings include two or more rollers longitudinally aligned and mounted on a roller shaft.

14. (Currently Amended) A rotary machine comprising:

a housing with spaced apart end walls for defining a chamber;

a two-lobe elliptical or lenticular rotor assembly having curved faces meeting at symmetrically opposed apices, said rotor assembly having two parallel end faces extending between said curved faces, each of said parallel end faces facing one of said end walls, said rotor assembly disposed in said chamber for eccentric rotation therein, said rotor assembly

further having an even number of twelve or more straight cams ~~cam surfaces~~ in at least one of said parallel end faces arranged about a center of said rotor assembly, each of said straight cams defining an edge ending at a distance from said rotor center;

a rotor guide assembly extending from at least one of said end walls, said rotor guide assembly including six or more arc cams, each of said six or more arc cams being cylindrical in shape over a portion thereof, each of said six or more arc cams having a radius R_p over said portion, each of said six or more arc cams extending through at least one of said parallel end faces having said straight cams, said six or more arc cams engaging said straight cams during said eccentric rotation of said rotor assembly, each of said arc cams having a center longitudinal axis;

a shaft having a center longitudinal axis, said center longitudinal axis of said shaft being offset from said center of said rotor assembly by an offset distance R_{C1}, said shaft extending through said chamber and rotatably mounted in one or both of said endwalls, said shaft further being centered between said six or more arc cams such that the distance R_{C2} of said center longitudinal axis of said shaft to each of said center longitudinal axis of said six or more arc cams is equal to said offset distance R_{C1}, said shaft including at least one eccentric bearing for forming driving contact between said shaft and said rotor assembly, said eccentric bearing having longitudinal center passing through said center of said rotor assembly;

a point of engagement of each of said arc cams with either of two engaging straight cams of said twelve or more straight cams, said point of engagement having a distance from said center of said rotor assembly, said point of engagement having rotor assembly position, said rotor assembly position having an angle (180 - α) between said center of said rotor assembly to said arc cam center longitudinal axis measured from said shaft center longitudinal axis center, said point of engagement having said distance from said center of said rotor assembly equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180-\alpha) + R_P^2}.$$

15. (Previously Presented) The rotary machine of claim 14 further comprising:

a region adjacent an area of said twelve or more straight cams, said region having a minimum radius of simultaneous engagement measured from said center of said rotor assembly, said radius being defined by two adjacent leading arc cams or adjacent trailing arc cams of said arc cams, said two arc cams having a first in line arc cam and second in line arc cam, said two adjacent arc cams having an angle (χ) between said center longitudinal axis of said two adjacent arc cams measured from said shaft center longitudinal axis, said angle (χ) being the maximum for any two adjacent leading arc cams or trailing arc cams, said angle (χ) being less than 180 degrees, said minimum radius of simultaneous engagement being said distance of engagement of the said second in line of said two adjacent arc cams and said distance of engagement of said first in line of said two adjacent arc cams when equal, said rotor having position for said minimum radius of simultaneous engagement, said position having angle (180 - α1m) between said center of said rotor assembly to said second in line of two adjacent arc cams center longitudinal axis measured from said shaft center longitudinal axis, said position having angle (180 - α2m) between said center of said rotor assembly to said first in line of two adjacent arc cams center longitudinal axis, said minimum radius of simultaneous engagement is equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180 - \alpha 1m) + R_{P1}^2}$$

16. (Original) The rotary machine of claim 15 wherein:

said minimum radius of simultaneous engagement is also equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180 - \alpha 2m) + R_{P2}^2}$$

17. (Original) The rotary machine of claim 16 wherein:

said minimum radius of engagement for said arc cams of equal radius is equal to

$$\sqrt{R_{C1}^2 + R1_{C2}^2 - 2R_{C1}R1_{C2}\cos(180 - \tfrac{1}{2}\chi) + R_{P1}^2}$$

18. (Original) The rotary machine of claim 17 further comprising:

an edge of said second in line arc cam of said two arc cams of said leading or trailing set of arc cams, said edge containing a contact point between arc cam and straight cam at minimum radius of simultaneous engagement, said edge being a distance R_{smax} from said shaft center longitudinal axis, said distance R_{smax} from shaft longitudinal center is equal to

$$\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$$

19. (Original) The rotary machine as claimed in Claim 18, with said hole passing through the central portion of the rotor assembly and said parallel end faces;

wherein said shaft extends through said hole and said chamber, and is rotatably mounted in each of said end walls; and

wherein said hole is sized so that a distance between said rotor assembly center longitudinal axis to each of said two edges for each of said open ends of said slots is less than said minimum radius of simultaneous engagement equal to

$$\sqrt{R_{C1}^2 + R_{C2}^2 - 2R_{C1}R_{C2}\cos(180 - \alpha 1m) + R_{P1}^2}$$

and the maximum radius of said shaft is less than

$$\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$$

20. (Original) The rotary machine as claimed in Claim 19, further comprising a cutout portion in said shaft to provide clearance for said shaft to extend through the hole in said rotor assembly.

21. (Original) The rotary machine as claimed in Claim 19, wherein said arc cams are shaped to provide rotational clearance for said shaft.

22. (Original) The rotary machine as claimed in Claim 19, wherein said arc cams are generally cylindrical in shape.

23. (Original) The rotary machine as claimed in Claim 19, wherein said shaft is cylindrical in shape except for a portion adjacent said eccentric bearing.

24. (Original) The rotary machine as claimed in Claim 19, wherein said arc cams are cylindrical bearings.

25. (Original) The rotary machine as claimed in Claim 24, wherein each of said cylindrical bearings include two or more rollers longitudinally aligned and mounted on a roller shaft.

26. (Previously Presented) The rotary machine as claimed in Claim 1, wherein said arc cams comprise rotatably mounted straight sliders.

27. (Previously Presented) The rotary machine as claimed in Claim 26, wherein said straight sliders are positioned for engagement with said straight cams.

28. (Previously Presented) The rotary machine as claimed in Claim 14, wherein said arc cams comprise rotatably mounted straight sliders.

29. (Previously Presented) The rotary machine as claimed in Claim 28, wherein said straight sliders are positioned for engagement with said straight cams.

REMARKS

With entry of the above Amendment, claims 1-29 are now present in the application, claims 1, 2, 14 and 15 having been amended. An early examination and allowance of the application are respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application to Deposit Account No. 06-1135.

Respectfully submitted,

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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : US 6,799,955 B1
APPLICATION NO.: 10/628,658
ISSUE DATE : October 5, 2004
INVENTOR(S) : Joseph A. Sbarounis

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 13, line 43, delete the equation "$\sqrt{R_{C2}^{2}+R_{P1}^{2}-2R_{\ldots}}$." and insert

-- $\sqrt{R_{C2}^2 + R_{P1}^2 - 2R_{C2}R_{P1}\cos(90 - \alpha 1m/2)}$. -- therefor.

Column 15, line 23, delete "claim 19" and insert --claim 18-- therefor.

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